North-south Bioenergy Experience
Success and Failure
- Case studies-

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Renewable Energy Asia 2016
Energy Transition for ASEAN Future
1 June 2016, BITEC, Bangkok, Thailand

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North-South Cooperation: what does it mean?

Transfer of knowledge and technical know-how between developed (North) and developing countries (South)

North

South

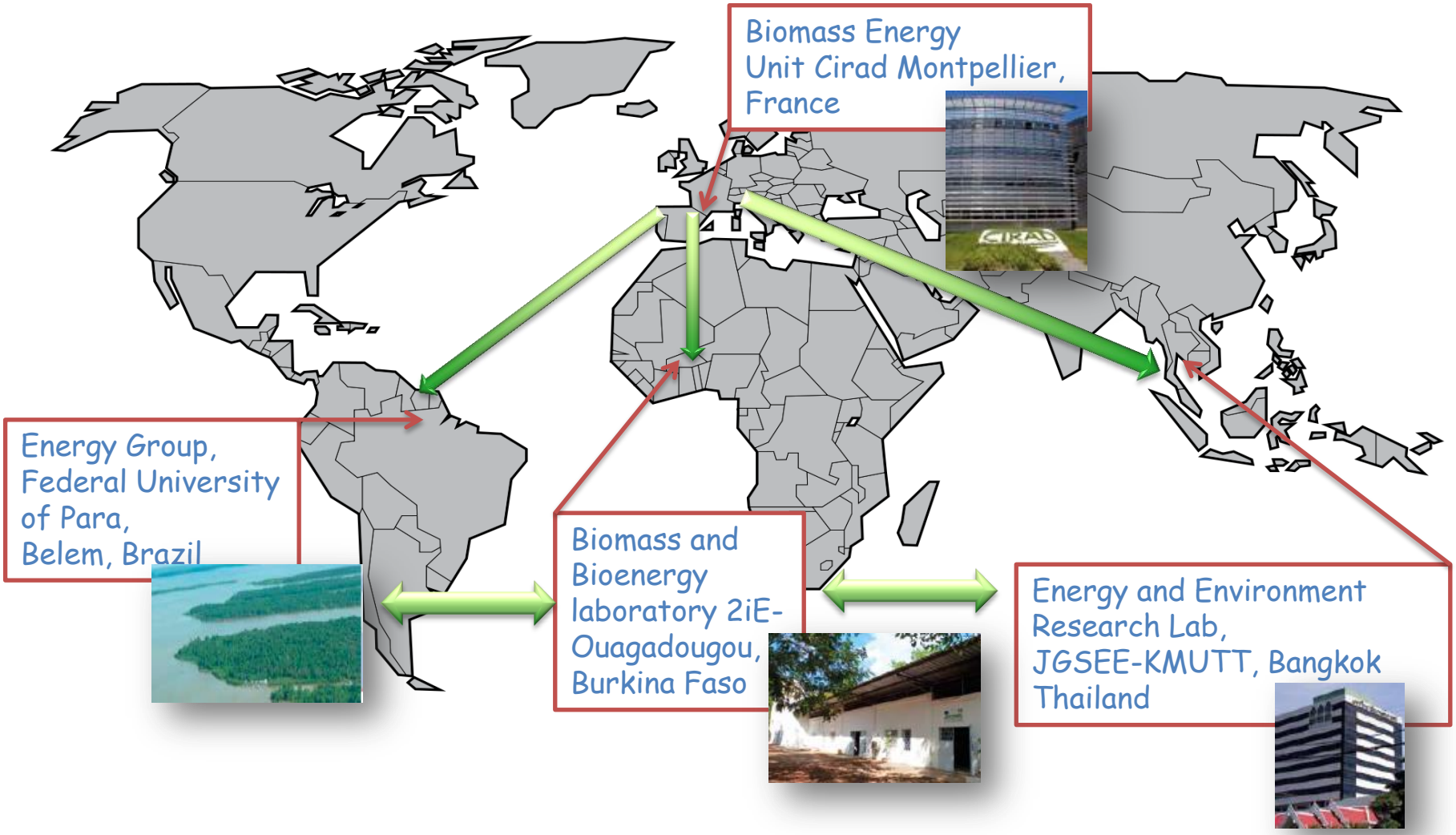
Triangular Cooperation

A complement to North-South cooperation = tripartite collaboration and partnerships between South-South-North countries

North

South South

Example of Triangular Cooperation Implementation



Network of Recognised Laboratoties = Plateform for collaborative researches .

Objective: Link project activities in Africa with on going successful efforts in Latin America and Asia

Stereotype or reality?

- Poor
- Agricultural
- Poor roads, …
- Little energy
- Wood, wind, animal, human energy
- Disease and famine
- Polluted or little water

- Rich
- Industrial
- Good roads, transportation
- High energy consumption
- Oil, coal, nuclear
- Good health care
- Clean water

Reasons for success or failure in the experience North – South?

Success story:

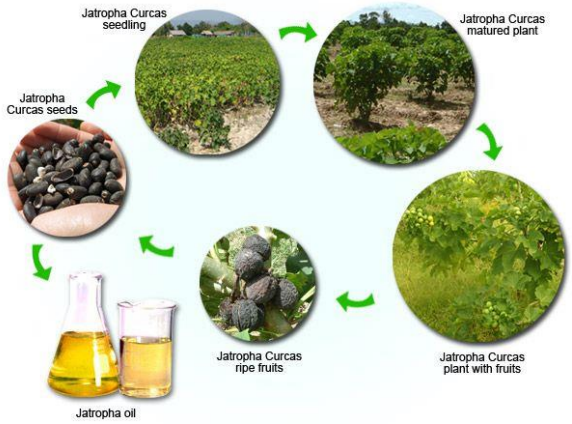
- Sugarcane ethanol in Brazil
- Cassava ethanol in Thailand
- Biodiesel in Germany

Reasons:

- Country's tradition in cultivating selected feedstocks
- Technologies available for bioenergy production
- Adequate public policies
- Smart and sustained government support for bioenergy
- Medium term view of business risks to invest in these long-term endeavours

Unsuccessfull bioenergy project

jatropha (miracle crops!)was a disappointment in several projects and did not deliver the expected performance



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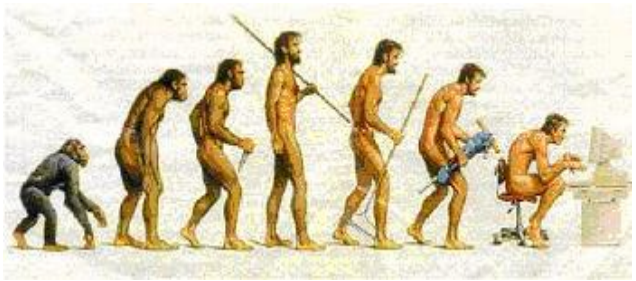
Around the world, there are both successful and unsuccessful bioenergy project deployment cases. Key issues to be investigated:

1. Local conditions

2. Technology adaptations



3. Public policies

Starting from existing "good" projects, some of the main questions and trying to answer are the following:

- What are the key factors of success and sustainability of existing and future bio-energy initiatives?

- How to establish effective local and regional partnership among producers and beneficiaries?

Phases identifying for implementing bio-energy projects

The more details are considered less problems will arise in the following phases

Phase I (idea, beginnings)
Phase II (analysis, planning phase)
Phase III (implementation phase)
Phase IV (enlargement of implementation)
Phase V (changes of the project)
Phase VI (ongoing of the project)

Lot of changes concerning bio-energy plants are visualized : fuel price, etc..

Renate Kleinhappl, Best practice, business model for bio-energy, success stories, 2009

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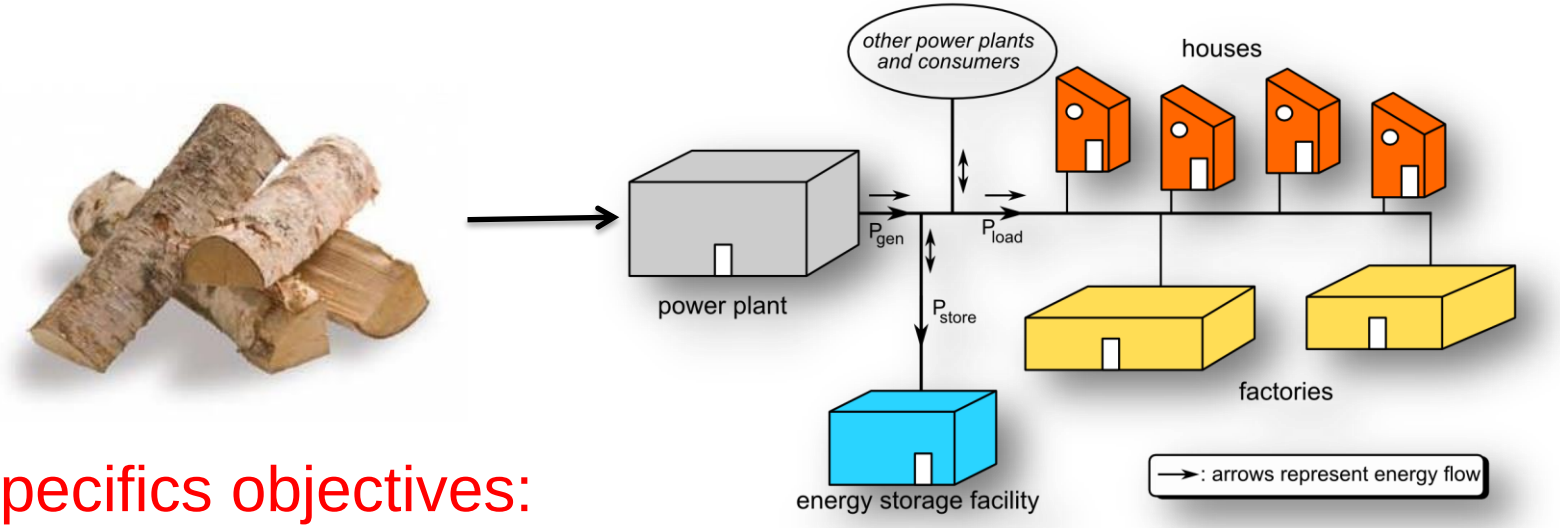
Two projects

- Decentralized Rural Energy: Brazil-Madagascar-France
- Charcoal Production: France-Brazil

Project 1 : Biomass Power Plant, 70kwe

- Objective: Producing decentralized electricity for remote area



- Specifics objectives:
  - Build a steam engine new generation
  - Technology transfer
  - Biomass assessment
  - Sawmill and dryer implementation
  - Local grid development

Short overall description of the country/region

Coordination (France)

Developper
(Brazil)

End-user
(Madagascar)

Short overall description of the actors

Developer

Thermoelectric PSI

- SME, 10 employees
- Mechanical engineering
- Mainly national market
- International experience only in Latin America

Coordination

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- Public institution
- 1600 employees
- Research centre
- International cooperation
- Project manager

End-user

Energy Agency and rural community

- Public institution
- 8 employees

Community

Farmers, foresters, Electricity needs

➢ Brazil: Develop and build steam engine

Mechanical specifications

R&D Management

Workshop set up

Local test

➢ Madagascar: Biomass assessment + project Implementation

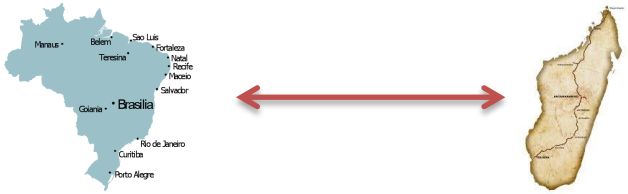
Woody biomass

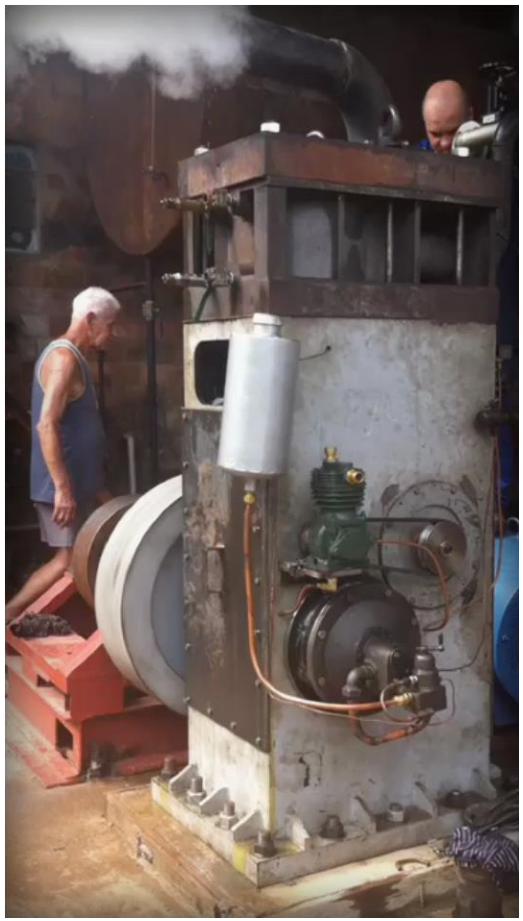
Boiler

Capacity

Sawmill

Grid





Engine test in Brazil

Power plant test in Madagsacar

Success or failure ?

Brazil:

- R&D capacity
- Financing capacity
- International market
- Technology transfer
- Capacity building

Madagascar:

- Wood supply contract between the power plant and the farmers delivering the wood
- Biomass assessment
- Electricity supply contract between the power plant and heat customers in the village
- Operating

Criteria selected for implementing bio-energy projects

- Phase I (idea, beginnings): technology robustness/project leader
- Phase II (analysis, planning phase): 

biomass assessment
- Phase III (implementation phase) : technology transfer
- Phase IV (enlargement of implementation) : Dissemination
- Phase V (Changes of the project): R&D weakness
- Phase VI (ongoing of the project): 

operational coast

Project 2 : charcoal plant + power generation

- Objective: Producing charcoal and electricity with high-tech technology

End users:

Steel industries

- Mechanized process
- Low emission
- High quality charcoal

Developers:

Carbonex,SME

- Charcoal producer
- R&D
- Brazil branch

Expertise:

Cirad

- Charcoal expert

From traditional methods to…

80% of brazilian charcoal

Industrial methods (Bricket kilns)

20% of brazilian charcoal

Power generation

Biomass

Expertise

Operate

Dissemination

Success  or failure  ?

<u>France</u>

- R&D capacity 
- Financing capacity 
- International market 
- Technology transfer 
- Capacity building 
- Technology maturity 

<u>Brazil:</u>

- Wood supply 
- Acceptance new technology 
- Operating 
- Energy policy 
- Environment policy 

Criteria selected for implementing bio-energy projects

- Phase I (idea, beginnings): project leader, good consortium
- Phase II (analysis, planning phase): 

important background
- Phase III (implementation phase) : Acceptance and financing
- Phase IV (enlargement of implementation) : Dissemination
- Phase V (Changes of the project): R&D, important background
- Phase VI (ongoing of the project): 

Crisis 2008=>steel production affected

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Some recommendations to make bio-energy projects North/South more chance to succeed

1. In the beginning a strong person which is an opinion leader is needed.
2. Social study has to be an integral part of the project as technical and economical feasibility study.
3. Get an overview about the legal conditions concerning bio-energy and knows advantageously funding possibilities.
4. Resistant consortium should be found (farmers, industry, …) to define the detailed project steps.
5. Permanent cost control
6. React in time on changing situations like raising fuel prices, regional acceptance, partner become a potential competitor in the future, …

Thank you for your attention

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